

AN ARCHEOLOGICAL SURVEY OF THE
ANACONDA COMPANY'S OAK CANYON TRACT IN THE
JACKPILE MINE, PAGUATE, NEW MEXICO

Confidential Claim Retracted

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By

Paul S. Grigg and Stephen L. Fosberg

Submitted By

Frank J. Broilo
Principal Investigator

(UNM Proposal 185-2D)
University of New Mexico
Office of Contract Archeology

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I. INTRODUCTION

Reported herein is an archeological survey conducted by the Office of Contract Archeology (University of New Mexico) for proposed uranium mining facilities which will utilize a 250-acre tract on the western edge of the Anaconda Company's existing Jackpile Mine. This project was requested by the Anaconda Company in compliance with Federal legislation regulating the protection of cultural resources. The Jackpile mine is operated by the Anaconda Company on lands leased from the Pueblo of Laguna near the village of Pagate, New Mexico. Mr. W. E. Gray, Manager of Environmental Engineering for the Anaconda Company, was responsible for coordinating the survey with the Anaconda Company's activities in the area. Authority to conduct this project on Pueblo of Laguna Lands was granted in a letter from the Honorable, Roland E. Johnson, Governor, on October 15, 1976.

This project, designated UNM Proposal Number 185-2D, was implemented under the direction of David E. Stuart, Research and Project Coordinator, Office of Contract Archeology. Field reconnaissance was conducted by Mr. Paul S. Grigg, Archeologist, and Mr. Rory P. Gauthier, Archeologist, for the Office of Contract Archeology on June 14, 15, and 16, 1977.

The Jackpile mine is located just south of the town of Pagate, New Mexico. The tract surveyed on this project lies on the NW $\frac{1}{4}$ of Section 9 and in the NE $\frac{1}{4}$ of Section 10, T10N, R5W, New Mexico Principal Meridian. This area is located near the head of Oak Canyon. Maps used to delineate the tract and to plot the sites were provided by Mr. Alex Cortez of the Anaconda Company.

As a result of 20 years of mining, portions of the land are already in use as a workshop area, a parking lot, and a dumping area for mine tailings. Several roads and numerous drill holes are also in use here as well. The archeological survey became necessary because of the Anaconda Company's proposed expansion of similar activities within the tract. These plans include the dumping of more mine tailings, the construction of more shop areas and roads, and the opening of a new shaft. Before such activities can be implemented however, Federal regulations now require that an archeological survey be conducted of the affected areas that come under federal jurisdiction. Such surveys are performed to locate, assess, and then protect those archeological sites which are deemed significant because of the data potential inherent in them in reference to research designs or problem orientations of the archeologists.

Archeological sites may be directly destroyed by even minor disturbances of the surface, such as the construction activities proposed by Anaconda. In addition, cultural resources can also be destroyed or damaged by such indirect impacts as erosion or the removal or displacement of points and other cultural materials by individuals. This archeological survey represents the first step in a cooperative effort to protect these resources. It is hoped that with the assistance of the Anaconda Company, disturbances to these sites can be kept to a minimum.

A total of nine sites were located in the survey area, two of which had been recorded previously (Sites OCA:SR-1 and OCA:SR-2). In addition, a total of seven localities were noted. These sites range from early Archaic (Bajada phase) times to recent historic activities. One of these sites, OCA:SR-2, is considered eligible for nomination to the National Register of Historic Places. The following report will present the environmental and archeological data recovered during the survey and evaluate the scientific significance of the recorded cultural manifestations.

II. SURVEY PROCEDURES

The archeologists monitored the survey area by walking parallel transects, utilizing a combination of natural and man-made features as guides. Topographic and vegetative conditions dictated the spacing of the transects, which averaged 20 to 30 meters apart. This distance insured the maintenance of a 100% visual coverage needed to locate all surface manifestations of past human activity. Those areas which had been completely stripped of their original surface, or which had been covered by mine tailings were, of course, not surveyed.

Archeological sites were recorded using standard Office of Contract Archeology procedures, which are designed to insure the collection of environmental data as well as the descriptions of features and the material culture encountered at each site. The location and extent of each site was plotted as accurately as possible on Anaconda Company maps and on the USGS Mesita Quadrangle Map. Photographs were taken of each site and also of specific features, if deemed appropriate. A sketch map was drawn of each site showing its internal structure, when present, and its relationship to the surrounding terrain. Cultural materials such as sherds, flakes, and manos, were studied in the field and left in situ to minimize disturbance to the sites. To aid in visual recognition, site boundaries were flagged with fluorescent, orange pin flags.

Those manifestations of past human activities which were deemed to contain little or no potential for further data retrieval beyond that already recorded on the survey were designated as "localities" and were not flagged. They were, nevertheless, located on Anaconda maps and on the USGS Mesita Quadrangle.

Localities 5 and 7 represented the only ones which offered even minimal potential for additional data recovery. Both of these were classified as localities rather than sites on the basis of the paucity of material remains and because of their dispersed, surficial nature which made it difficult, at best, to delineate boundaries.

Both the field data and this report will be on file at the Office of Contract Archeology and at the Museum of New Mexico in Santa Fe.

III. ENVIRONMENTAL SETTING

Oak Canyon Survey area ranges in elevation from 5900 to 6140 feet above sea level. It is bordered on the west by a 1,000 foot high unnamed mesa which divides the Rio Paguete from the Encinal Creek drainages. The mesa is capped by basalt flows which date from the Pleistocene and which relate to the development of Mt. Taylor. This volcano rises to over 11,000 feet and lies 16 miles to the northwest. The Cebolleta Mountains, which extend north and east from Mt. Taylor, reach 8,000 to 9,000 feet in elevation, and contain the headwaters of the Rio Paguete. This drainage, into which Oak Canyon empties, flows southward after leaving the mountains 10 miles north of the survey area, and eventually merges with the Rio San Jose 5 miles south of the tract.

Oak Canyon itself measures three miles in length and is bordered by the North and South Oak Canyon Mesas. Erosion has cut this 200 foot deep canyon through the Cretaceous Dakota Sandstone, which normally forms the cap rock of these mesas, and into the Morrison formation. The Morrison is a uranium-bearing series of mudstone, siltstone, and sandstone beds of Jurassic age. This formation has been divided into four stratigraphic units: the basal Recapture Member, the Westwater Canyon Member, the Brushy Basin Member, and the Jackpile sandstone (Warren 1977:5). These members are exposed on the talus slopes which form the north and south walls of the canyon.

Physiographically, the tract can be divided into three features: mesas, talus slopes, and valley bottoms. The vegetation and soil structure for each division will be discussed in turn.

The mesas are covered by a variable mantle of aeolian and stabilized sand, up to two meters thick, which overlies the sandstone bedrock. Near the rim of the canyon, where the sand deposits are mostly of a thin aeolian nature, juniper and oak constitute predominant vegetative species. Other sections of the mesas feature large, flat, grassy areas with junipers limited to erosional surfaces and arroyos. Snakeweed, cholla, prickly pear, and Yucca elata may also be common on the mesa tops.

The talus slopes vary from those with a uniform gradient to those which have weathered into a series of small benches and cliffs. Some of the cliffs feature overhangs or shallow caves suitable for shelters. Lithic resources of siliceous stone may occur on these slopes in the Brushy Basin Member of the Morison formation (Warren 1977). The vegetation here is dominated by juniper and oak with high percentages of wolfberry, skunkbush, saltbush, pinon, and beargrass also present. Cholla, prickly pear, snakeweed, grasses, four o'clocks, and Yucca elata are also common on these slopes though they occur less frequently.

The valley bottom is eroding into ridges and cuts, removing much of the sandy, alluvial soil. Of the vegetation which can survive in the more highly eroded areas, grasses, saltbush, snakeweed, yucca, cholla, and prickly pear appear most commonly. Juniper, beargrass, peas, and wolfberry generally grow along the edges of the valley bottoms near their juncture with the talus slopes. (As a result of water accumulation in the lagoons associated with the shop area, a lush aquatic vegetation has arisen in the arroyo below the shop which would not normally develop in this area.)

The areas already disturbed by construction activities occur mostly to the south of the canyon itself. The shop area is shown on the USGS map, in the NE $\frac{1}{4}$ of the NE $\frac{1}{4}$ of Section 9. About 20 to 25 acres have either been covered with tailings, which extend onto the talus in places, or have been bulldozed as have those areas around the shop. A paved road and two graded dirt roads lie west of the shop. Some of the talus and mesa lands on the north side have also been utilized as mine tailings spoil areas.

IV. ARCHEOLOGICAL AND HISTORIC OVERVIEW

Archeological and ethnohistorical investigations of the Laguna and Paguate areas indicate an almost continuous occupation from Early Archaic (ca. 5,000 B.C.) times to the present (Wilson 1971; Ellis 1974; Rands 1974). Many small

archeological projects have been conducted in the area under a "contract program" where the object of the work was to remove as much of the material culture as possible in the absence of a previously formalized research design. No synthesis of the information from these projects exists at this time, and it is beyond the scope of this report to provide one.

The earliest known occupation of the Southwest is that of Paleo-Indian (older than 7,000 B.P.). Paleo-Indian sites are well-documented in the areas east of Laguna on the Llano de Albuquerque (Judge 1972). It is likely that sites of this type occur in the Paguete area as well although they have yet to be reported. Paleo-Indian subsistence was based on a big game hunting tradition. Faunal as opposed to floral resources were most often consumed by these extremely mobile bands of hunters. Such sites tend to be small and ephemeral and are often located along ridges that provided overviews of playas where the animals came for water (Judge 1972:330).

Archaic sites have been found in great numbers on the Rio Puerco and its tributaries (Irwin-Williams 1974). This period (from 7,000 to 2,000 B.P.) is not particularly well understood; but it is known that the subsistence basis had become more diversified than in Paleo-Indian times to include the utilization of a broad spectrum of faunal and floral resources. The collecting and grinding of seeds may have formed the mainstay of Archaic subsistence as the presence of grinding stones and associated basin metates are commonly found on these sites (McGregor 1974:131). Most Archaic sites tend to be small camps with no indications of shelters (except when caves were used). Sites appear to have been used for longer periods of time as compared to Paleo-Indian camps and they are often located near ecotonal settings where a variety of floral resources may have been available during different seasons of the year.

Following, the gathering mode of subsistence by Archaic groups, Puebloan culture evolved a more sedentary means of existence as they relied increasingly upon agricultural resources. The best evidence for Pueblo groups in the survey area span the Basketmaker III through Pueblo III periods, c.a. A.D. 500 to A.D. 1300. The early sites feature circular pit houses one to five feet deep and nine to twenty-five feet in diameter with surface storage structures (Carroll, Hooton, and Stuart 1976). The later sites (P-I, P-II, and P-III) contain rectangular surface rooms of true masonry. Over time, a series of developments including increased storage facilities, improvements in irrigation practices, and the maintenance of road and trade networks lead to greater

food production and regional economic integration. Near the San Juan area, the center for such a social and economic network was Chaco Canyon. In the survey area, the numerous field houses and work areas that date to this temporal span most often fall within the P-II time period (900-1100 A.D.). As reported by Gauthier, Acklen, and Stein (1977), many of these sites are ephemeral in nature and may have been utilized as field houses. They may well have formed part of a settlement system designed for food exportation to Chaco Canyon.

The historic period in the Pagate and Laguna areas is complicated by the interaction between various groups: Lagunas, Acoma, Navajo, Apache, Spanish, and Anglo. Although explored as early as the mid 16th century, only a modest colonization effort began in 1598, centered in the Rio Grande Valley. The earliest historic documentation of the Lagunas dates to the end of the seventeenth century (Grigg, Stein, and Stuart 1976). Mass movements of people during the Pueblo Revolt, coupled with the absence of Spanish documentation of the period make it all but impossible to ascertain developments from 1680-1690. The Pueblo of Laguna itself appears to have been founded by groups of refugees, following the Pueblo Revolt in the late 17th century, since Spanish documents do not mention its existence prior to 1699, when the village surrendered to Gov. Cubero (Grigg, Stein, and Stuart 1976:4). Historic use of the Pagate area is also believed to have been initiated about this time (Rands 1974; Ellis 1974). It is likely that the Pagate area served as a seasonal camp for sheepherders before the first permanent settlement was established there by the Lagunas in 1749 (Jenkins 1974). However, by the end of the 18th century, the settlement was abandoned due to intensive raiding by Apache and Navajo bands (Rands 1974). Resettlement took place in the mid-1800's because of the enforced confinement to reservations of most of the raiding Navajo and Apache bands (Rand 1974; Grigg, Stein and Stuart 1976).

Railroad connections were established in Laguna in 1881, leading to greatly increased contact. In this way, quantities of glass and tin cans become available, which are now in evidence on most post-1881 sites. The area was not utilized historically for mining until the 1950's when uranium became economically valuable. Since then, the uranium mining industry has grown steadily and has substantially altered the subsistence economy of the Laguna from that of an agrarian-pastoral society to a cash-based mining economy.

V. AN INVENTORY OF ARCHEOLOGICAL SITES AND LOCALITIES

Site Number: OCA:OC:1

Location: U.S.G.S. Quadrangle--Mesita, New Mexico.
SE $\frac{1}{4}$ of NE $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W;
Anaconda Coordinates: 997,000E/1,000,400N, map 21.

Physiographic Situation: This site is located 30m to 50m from the north rim of Oak Canyon.

Cultural/Temporal Type: Unknown lithic, possibly Archaic.

Description: This is a lithic scatter, possibly, with a hearth. Material is sparse and occurs mostly in blowouts in the sand and includes quartzite, chert, chalcedony, obsidian, and silicified wood. No diagnostic artifacts were found on the surface.

Recommendations. Avoidance--150' diameter from the coordinates given above.

Site Number: OCA:OC:2

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
SE $\frac{1}{4}$ of NE $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W;
Anaconda Map Coordinates: 997,950E/1,000,125N, map 20.

Physiographic Situation: This site is located on a small, south-sloping rise on the mesa about 60m from the north rim of Oak Canyon.

Cultural/Temporal Type: Unknown.

Description: This site consists of a circular shelter, 2.3m in diameter which is made of dry-laid sandstone slabs, a rock cairn, and a few slabs set on edge, some forming a small alignment. No diagnostic artifacts were found on the surface.

Recommendations: Avoidance--120' diameter from the coordinates given.

Site Number: OCA:OC:3

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
E $\frac{1}{2}$ of NW $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 9, T10N, R5W;
Anaconda Map Coordinates: 995,450E/1,000,150N, map 21.

Physiographic Situation: This site is situated between the talus slope and the main arroyo on the south side of Oak Canyon.

Cultural/Temporal Type: Anasazi, P-II.

Description: This site consists of a scatter of sherds and flakes, a trough metate, some rock alignments, and a room (?) built in a cave. The sherd types include Red Mesa black-on-white, Puerco black-on-white, Kana'a neckbanded, and a corrugated ware. This ceramic assemblage indicates P-II occupation of the site. The lithic materials include quartzites, cherts, and basalt. The "room" is poorly defined and no outline or dimensions were discernible. The rock alignments occur in the arroyos and may represent more recent activity than P-II.

Recommendations: Avoidance--a 300' diameter from the coordinates given.

This site is just below the present shop area and is endangered by the tailings upon which these facilities are built.

Site Number: OCA:OC:4

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
NE $\frac{1}{4}$ of NE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 9, T10N, R5W;
Anaconda Map Coordinates: 995,550E/1,000,550N, map 21.

Physiographic Situation: This site is located in the eroded alluvial soil of the valley bottom, and is equidistant from the talus and arroyo on the north side of the canyon. The site occurs along a small ridge.

Cultural/Temporal Type: Unknown.

Description: This site consists of at least two ill-defined hearths eroding out of a ridge and a lithic scatter around the general area. Two historic polychrome sherds were found nearby, but these may not be associated with the possible hearths. Lithic materials include cherts, obsidian, and quartzite. The hearths have small fist-sized pieces of sandstone and charcoal, but no obvious outline.

Recommendations: Avoidance--a 100' diameter from coordinates given.

Site Number: OCA:OC:5

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
SE $\frac{1}{4}$ of SW $\frac{1}{4}$ of NE $\frac{1}{4}$, the NE $\frac{1}{4}$ of NW $\frac{1}{4}$ of SE $\frac{1}{4}$, the NW $\frac{1}{4}$ of NE $\frac{1}{4}$ of SE $\frac{1}{4}$ of Section 9, T10N, R5W;
Anaconda Map Coordinates: 994,275E/998,375N, Map 21.

Physiographic Situation: This site is located 600m south of the rim of Oak Canyon along the bottom of a north sloping ridge which is covered with basalt clasts.

Cultural/Temporal Type: Laguna, recent.

Description: This site has three features and a scatter of historic material which includes broken glass, tin cans, baling wire, etc. One feature is a shelter with stone foundations (40cm high) that has brush laid on top and is built around a live juniper. Each side measures two meters with the eastern one serving as an entrance. There is a second feature 18m to the northeast which has a roughly rectangular outline measuring 4m x 6m, and has been cleared of rock. Its function is unknown. In addition, there are two contiguous brush corrals 40m to the southeast. One of these measures 10m in diameter, the other 7m. Material on the site indicates that it dates no earlier than the 1930's and possibly as late as the 1950's.

Recommendations: Avoidance--a 150' diameter from coordinates given.

Site Number: OCA:OC:6

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
SW $\frac{1}{4}$ of SE $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W;
Anaconda Map Coordinates: 997,300E/998,800N, Map 20.

Physiographic Situation: This site is located just south of the rim of Oak Canyon and extends 50m back from the rim of the Mesa.

Cultural/Temporal Type: Archaic, En Medio Phase.

Description: This site consists of a well-defined lithic scatter, ground stone, and several hearths. An obsidian point was found which would indicate that this is a late Archaic site. There were also a one-hand mano and a basin metate on the site. The hearths had no obvious outline but were definable on the basis of charcoal stains and burned, fist-sized pieces of sandstone. Other lithic material on the site included chert, chalcedony, and quartzite. Two broken bifaces were also found.

Recommendations: Avoidance--a 150' diameter from coordinates given.

Site Number: OCA:OC:7

Location: U.S.G.S. Quadrangle: Mexita, New Mexico.
SE $\frac{1}{4}$ of NE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 9, T10N, R5W;
Anaconda Coordinates: 995,375E/999,700N, map 21.

Physiographic Situation: This site is located about 20m from the south rim of Oak Canyon.

Cultural/Temporal Type: Unknown; probably Archaic.

Description: This site consists of a hearth area and a lithic scatter. No diagnostic artifacts were found. The hearths are not well-defined, and have fist-sized pieces of burned sandstone in them. Two or three hearths may be present. Lithic materials include quartzite, chert, basalt, and chalcedony.

Recommendations: Avoidance--a 100' diameter from coordinates given. Since this site is adjacent to the shop area, it would be endangered by any vehicular or foot traffic over it, and should be fenced or excavated as soon as possible.

Site Number: OCA:SR:1

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
SW $\frac{1}{4}$ of SE $\frac{1}{4}$ of SE $\frac{1}{4}$ of Section 4, T10N, R5W;
U.T.M. Coord.: 284560 E, 3888420 N, Zone 13.
Anaconda Coord.: Map Sheet 21; 995075E/1,000,950N;
60 foot diameter centered on coordinates.

Situation: This site is situated on a talus slope, on the north side of Oak Canyon, approximately 75m west of a side canyon.

Cultural/Temporal Type: Anasazi, P-II to early P-III.

Description: This site consists of a lithic and ceramic scatter and the remains of a hearth. Ceramics noted at the site include exuberant corrugated, P-III corrugated, neck-banded wares, Red Mesa black-on-white, and Socorro black-on-white. The site is most likely a multi-component site, utilized sporadically from approximately A.D. 900 to A.D. 1200. A large number of utilized lithic flakes and tools were noted. The lithic materials consist of quartzites, cherts, chalcedonies, and an occasional piece of basalt.

Recommendations: We recommend dumping procedures be modified in this area to avoid this site or that further archeological investigation be conducted.

Site Number: OCA:SR:2

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
N $\frac{1}{2}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W;
Anaconda Coordinates: West end: 995,950E/1,000,500N;
East end: 997,375E/999,975N, map 21.

Situation: This site is situated on the north side of Oak Canyon on a series of bench features overlooking the drainage which is located 75m to the south.

Cultural/Temporal Type: Multicomponent; Archaic, P-III, and Historic Pueblo.

Description: This site consists of five corrals or terrace features, three or more habitation structures, ceramic and lithic scatters, and a possible Archaic hearth eroding out from the side of an arroyo.

The corral walls are constructed of unshaped sandstone clasts standing 2.0m high in places with the natural rincons and cliffs incorporated as portions of walls. Several habitation rooms occurring near these corrals are constructed of similar masonry style and utilize cliff faces for portions of the walls. Ceramics associated with these features consist of historic matte paint pottery (Ashiwi and Ako polychromes and Polished Red plainwares), indicating a date between 1700 and 1800. The absence of glass or metal would be consistent with such an 18th century historic occupation. This site, which was previously recorded, has been extended to include another corral structure, a terrace (?) and a room in a cave, all about 80m to 100m further east along the same talus slope on the north side of Oak Canyon. What was thought to be a wall when first surveyed is actually an effigy of a snake made of basalt clasts. This effigy is almost 7m long and about 30cm high. Since this may well be a shrine, special consideration must be given to it. It is probably associated with the early historic site (OCA:SR:2), but it could be more recent.

The occurrence of prehistoric ceramics (corrugated wares and Socorro black-on-white) indicates a prehistoric pueblo occupation. Evidence of this occupation was extremely limited since no structures or other features could be located.

Archaic manifestations include a projectile point, lithic debris, and a possible hearth area eroding out of the side of an arroyo, approximately 1.0m below the present ground surface. The Archaic evidence is primarily located on the alluvial flats below the sandstone cliffs.

The importance of this site resides, in the fact that it represents an 18th-century historic pueblo occupation. Similar sites (layout, situation, and date) are present near Zuni (Yellowhouse project: sites YH-59, YH-60, TH-61, and YH-62; John Stein, personal communication), Acoma (Mike Marshall, personal communication), and possibly Santa Ana. These sites represent a very

poorly documented period of pueblo history and are a rare phenomenon. It appears that following the reconquest of New Mexico by the Spanish after the pueblo revolt, a dispersion of populations at certain pueblos occurred. Sites, such as OCA: SR:2, can contribute significantly towards the solving of research problems concerning the effects of such dispersals (such as interactions with other cultures in the southwest, subsistence adaptations, etc.). They are also important as supplementary source of information for the historical documentation of this period.

Recommendations: We recommend that dumping procedures be modified in this area or that further archeological investigation be conducted. Avoidance of 150' on either side of the line connecting the two coordinates is recommended.

Locality: 1

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W;
Anaconda Map Coordinates: 998,425N/996,225E.

Description: This is a semi-circular brush structure with no artifacts associated. It is built in and around a small juniper tree.

Recommendations: No further mitigative action is suggested.

Locality: 2

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
NE $\frac{1}{4}$ of SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W;
Anaconda Map Coordinates: 999,240N/996,425E.

Description: This is a rock cairn of local sandstone clasts, located on a small ridge of the talus slope.

Recommendations: No further mitigative action is suggested.

Locality: 3

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
SW $\frac{1}{4}$ of SE $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W;
Anaconda Map Coordinates: 998,600N/997,500E.

Description: This locality consists of modern trash with tin cans, perfume bottles, glass, etc. dating to the 1940's or 1950's. It is roughly 5m x 10m in area.

Recommendations: No further mitigative action is suggested.

Locality: 4

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
W $\frac{1}{2}$ of SE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 9, T10N, R5W;
Anaconda Map Coordinates: 999,100N/994,875E.

Description: This locality consists of modern trash, measuring 20m x 20m, with tin cans, bottles, and two license plates (both 1956) and a rock cairn of local sandstone clasts.

Recommendations: No further mitigative action is suggested.

Locality: 5

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
SW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W and NE $\frac{1}{4}$ of SE $\frac{1}{4}$ of NE $\frac{1}{4}$,
Section 9, T10N, R5W;
Anaconda Map Coordinates: 999,200N/995,800E (400 ft. diameter).

Description: This is a sparse lithic scatter which covers a large area and extends back from the canyon rim 50m. Several concentrations were found which appear to have resulted from disturbances (from casual collection and redeposition) to the site rather than reflect their original contexts of deposition. A Bajada point was found on the west end, while one piece of ground stone and a biface were found near the center.

Recommendations: The density of material was too sparse to justify calling this a site, but additional study of this area is recommended before further land alteration takes place.

Locality: 6

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
NW $\frac{1}{4}$ of SE $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 9, T10N, R5W;
Anaconda Coordinates: 999,550N/995,150E.

Description: This is a rock cairn of local sandstone clasts.

Recommendations: No further mitigative action is suggested.

Locality: 7

Location: U.S.G.S. Quadrangle: Mesita, New Mexico.
NE $\frac{1}{4}$ of NE $\frac{1}{4}$, Section 9, T10N, R5W and
NW $\frac{1}{4}$ of NW $\frac{1}{4}$, Section 10, T10N, R5W;
Anaconda Map Coordinates: 1,001,000N/994,600E (west end) and
999,800N/997,000E (east end).

Description: This locality is a light sherd and lithic scatter on the north side of the arroyo between the arroyo and the talus slope.

The scatter includes OCA:SR:1, OCA:OC:4, and parts of OCA:SR:2. These sites are concentrations within this general scatter of material.

Recommendations: Avoidance is recommended since further useful data may be retrievable from this locality, in addition to that retrievable from the sites located within it.

VI. A SUMMARY AND SIGNIFICANCE OF THE CULTURAL RESOURCES

Archaic Summary

Archaic points were found on sites OCA:OC:6, OCA:SR:2, and on Locality 5. The latter two were Bajada points which date between 5000 and 3000 B.C. Unfortunately, these two points were found in situations which make it difficult to assess their significance. The point on OCA:SR:2 could have been collected and

brought there by one of the Laguna shepherders, since it was found near one of their structures. The point on Locality 5 was found with no other cultural material within 30 feet of it and the rest of this sparse lithic scatter could well date to later temporal periods. OCA:OC:6 is a well-concentrated scatter with a late Archaic point (En Medio phase, ca. 1000 B.C. to A.D. 500), a broken basin metate, a one hand mano, and several hearths. The hearths contained several fist-sized pieces of burned sandstone and ash, but no obvious outlines. The site also yielded two broken bifaces and a scatter of quartzite, chert, chalcedony, and silicified wood flakes.

Two other sites may also date to this period: OCA:OC:1 and OCA:OC:7. Neither of these sites revealed any ceramic or historical material on the surface. They are both located in physiographic situations similar to that of OCA:OC:6 on the mesa near the rim of the canyon. Sites OCA:OC:4 and Locality 7 may also feature Archaic components. Finally, the caves and shelters in OCA:SR:2 could contain Archaic levels under their historic components.

Archaic Significance

The Archaic sites present in the survey area may inform on a number of important problems concerning this adaptive period. In reference to their settlement strategy, the sites could yield information on:

- 1) The cultural relationships that may have existed with well-known sequences and human adaptive modes situated in the Rio Puerco as documented by Irwin-Williams (1967).
- 2) The degree to which settlement strategy was conditioned by differential periodicity and volume productivity of focal food resource species (within the study area) at a regional level.
- 3) The degree to which the choice of site locations may have been determined by the diversity and/or volume productivity of special resources within the vicinity of specific sites.

Concerning resource procurement and consumption strategies, they may contain data pertaining to:

- 1) The extent to which the technology of manufacture and use of extractive versus maintenance tool types might covary with site features such as hearths or storage facilities, and the extent to which this covariance may serve to define site functions.
- 2) The degree to which the technology of manufacture and use of tools and facilities necessary for procurement and consumption are conditioned by the distribution of technological resources across the landscape.

Finally, these sites may prove extremely valuable for the potential data preserved in the stratigraphic profiles of the rockshelters. Geologic testing may reveal:

- 1) The extent to which a paleoclimatic reconstruction correlates with those preserved at other Archaic sites in the Southwest.
- 2) The extent to which paleoclimatic factors can be cited as responsible for the increasing sedentary behavior and the rise of agriculture in times following the Archaic.

Puebloan Summary

Sites OCA:OC:3 and OCA:SR:1 consist of scatters of ceramic and lithic materials in the absence of any apparent associated structures. The ceramics on both sites include Red Mesa Black-on-White, Puerco Black-on-White, Kana'a neck-banded, and a corrugated ware, which date these sites to P-II times (A.D. 900 to A.D. 1100). A trough metate was also found on OCA:OC:3. The lithic materials utilized are similar to those of the Archaic, namely, chert, chalcedony, quartzite, and silicified wood flakes. These sites probably represent limited activity areas associated with agricultural use of the canyon bottom.

Site OCA:SR:2 contains a few sherds similar to those on OCA:OC:3 and OCA:SR:1. Locality 7, which is a very large but sparse scatter of sherds and flakes, also appears to date to this temporal period.

Puebloan Significance

Those sites of this time period may well yield data pertinent to the crucial questions centering on the causes for cultural evolution in the Southwest extant in anthropology today. The geologic factors which may have conditioned site placement and disuse could be monitored so that it may be understood:

- 1) To what degree the choice of site locations were conditioned by soil, physiographic, or climatological variability as they affected potential agricultural production.
- 2) Whether the abandonment of agricultural sites evidence salt build up or other evidence of soil deterioration in the stratigraphic profiles.

Examinations of the relationship between climatic stress and social interaction can be made. Specifically, the sites may be used to test the hypothesis that increased trade, social exchange, and cooperation between human groups occurs as a social means of buffering economic hardships.

- 1) Do sedimentological and pollen evidence for climatic stress correlate with increases in trade as determined by lithics and ceramic petrographic analyses?

2) What factors caused an increase in interaction between this area and Chaco Canyon?

Lastly, the sites can shed light on the dynamics of population growth and change in the survey area. Particular questions to be addressed could include:

1) To what extent can factors of adaptive change be attributed to indigenous population growth and attendant population pressures versus in-migrations from other areas?

2) To what extent do shifts toward greater or lesser degrees of sedentism appear as a result of population pressures or climatic stress?

Historic Summary

Sites OCA:OC:2, OCA:OC:3, OCA:OC:5, OCA:SR:2, and Localities 1, 2, 3, 4, and 6 are all historic or have historic component. OCA:SR:2 is the largest and best-preserved of these sites, with the most potential for data retrieval. It may also represent the earliest historic site since no metal or glass could be located on it. The site may be one of the sheep camps dating to the 18th century and the founding of Pagate; however, its use may have extended into the 19th century as well. The site features at least six corrals and eight small rooms since other rock alignments could also have served as rooms, corrals, or terracing. An extensive sherd scatter was present on the site, especially near the rooms. The large effigy of a rattlesnake probably is associated with this site since it was found close by.

Site OCA:OC:5 is a post-1930 sheepherders camp, with two sheep corrals, an apparent tent clearing, and a brush shelter with stone foundations. Sites OCA:OC:1 and Locality 1 are probably also recent historic sites that resulted from sheepherding activities.

Localities 2 and 4 are recent trash dumps (post-1950). Localities 2 and 6 are rock cairns that may have been built by sheepherders.

Historic Significance

The historic remains documented in the survey area are potentially significant with respect to the delineation of regional research questions aimed at furthering existing knowledge of the role played by Spanish/Anglo society in the evolution of the frontier. The historic sites could help to solve the questions of:

1) What the effects of mechanized transportation were on the organization of subsistence strategies?

2) What the effects of a money economy, and attendant wage-labor potential were on the organization of subsistence strategies?

3) To what degree did industrially based entrepreneurial strategies and market economies substantially change the local organization of subsistence behavior when compared to non-industrially based strategies.

Furthermore, the historic sites take on greater significance since some of them may be excavated as a means for improving current ethnohistoric and archeological methodologies. Testing ethnohistorical evidence against the data yielded through modern excavation techniques will sharpen existing methodologies and may well aid in the building of anthropological and archeological theory.

VII. PREDICTED EFFECTS OF THE PROPOSED PROJECT

All of the sites in the Oak Canyon survey area are in danger of direct or indirect destruction or disturbance from Anaconda's proposed mining activities. Some of the sites, such as OCA:OC:3, OCA:SR:1, and OCA:SR:2, are located below mine tailings, which, if this dumping continues, will eventually destroy them. Site OCA:OC:7 is situated so near the shop area that unless the site is fenced to stop vehicular traffic, it will inadvertently be destroyed. Mining activities and road building might endanger sites OCA:OC:5, OCA:OC:1, OCA:OC:2, OCA:OC:4, and OCA:OC:6.

Surficial sites or sites with only shallow fill can easily have their scientific potential destroyed by any displacement of surface materials. Most of the sites in the Oak Canyon tract in fact are of such a surficial nature and should therefore be considered as extremely fragile, irreplaceable resources.

VIII. RECOMMENDATIONS

Complete avoidance of all sites is always the most desirable method for the protection of cultural resources from an archeological viewpoint. Other forms of mitigation such as excavation fall short of the ideal since much data are inevitably lost through these procedures. Since no excavation can retrieve all the information present in a site, excavation cannot be considered as the first choice for mitigation since it results in the destruction of a site.

Site OCA:SR:2 is by far the most significant site in the Oak Canyon tract because of its unique character, size, and state of preservation. This particular site offers an extremely good opportunity to compare evidence available only through archeology against the accuracy and completeness of

historical documents for this poorly understood temporal period. However, complete avoidance is by far the most desirable method of protecting this site since its potential for data retrieval may increase over time as archeological methods improve and as archeological and archival studies reveal new questions to be answered. If the dumping of mine tailings over site OCA:SR:2 continues, the site will be badly damaged and eventually destroyed. It is highly recommended that dumping procedures in this area be modified or stopped altogether in order to preserve this site.

On small discrete sites with significant archeological potential, such as sites OCA:OC:6 and OCA:OC:7, the protection of cultural resources can best be accomplished by erecting a fence around the site, if construction activities are planned for the area.

Recent historic sites and localities such as sites OCA:OC:2, OCA:OC:5, and Localities 1, 2, 3, 4, and 6 offer limited potential for further research. However, because of their recent nature, it is possible to obtain much of the potential data available at these sites through excavation through ethnographic research instead. Protection or excavation of these sites, although desired, is not essential since such ethnographic studies of contemporary sheepherding activities are currently being conducted by the Office of Contract Archeology.

Sites OCA:OC:1, OCA:OC:3, OCA:OC:4, and OCA:SR:1, and Localities 5 and 7, if endangered by mining and/or related activities, should be subjected to further scientific investigation by surface studies, mapping, and limited testing of hearth areas.

APPENDIX I

DESCRIPTION OF STUDY AREA

Section 9, T10N, R5W, NMPM

E $\frac{1}{2}$ of the NE $\frac{1}{4}$

E $\frac{1}{2}$ of SW $\frac{1}{4}$ of NE $\frac{1}{4}$

NW $\frac{1}{4}$, NE $\frac{1}{4}$, SE $\frac{1}{4}$ of NW $\frac{1}{4}$ of NE $\frac{1}{4}$

Section 10, T10N, R5W, NMPM

S $\frac{1}{2}$ of NW $\frac{1}{4}$

NW $\frac{1}{4}$ of NW $\frac{1}{4}$

NW $\frac{1}{4}$, SW $\frac{1}{4}$, SE $\frac{1}{4}$ of NW $\frac{1}{4}$ of NW $\frac{1}{4}$

Anaconda Company Map Coordinates:

1. 1,001,025N/993,100E east to
2. 1,001,025N/995,740E S70E to
3. (interpolated) 1,000,600N/998,200E south to
4. (interpolated) 998,600N/998,200E west to
5. 998,380N/994,200E north to
6. 999,800N/994,200E N 40 W to 1.

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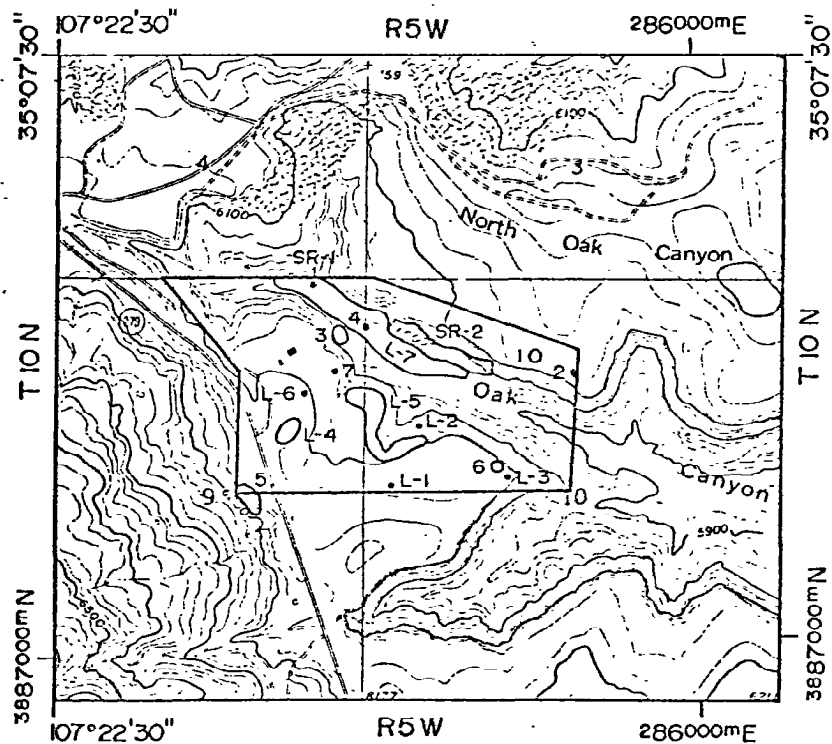
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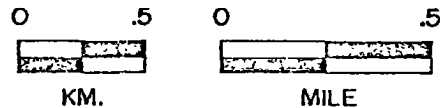
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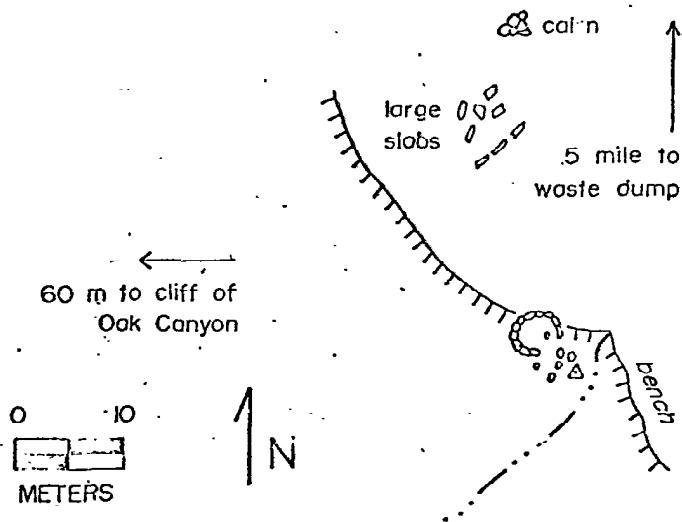
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ANACONDA OAK CANYON
OCA PROJECT NO. 135-2D



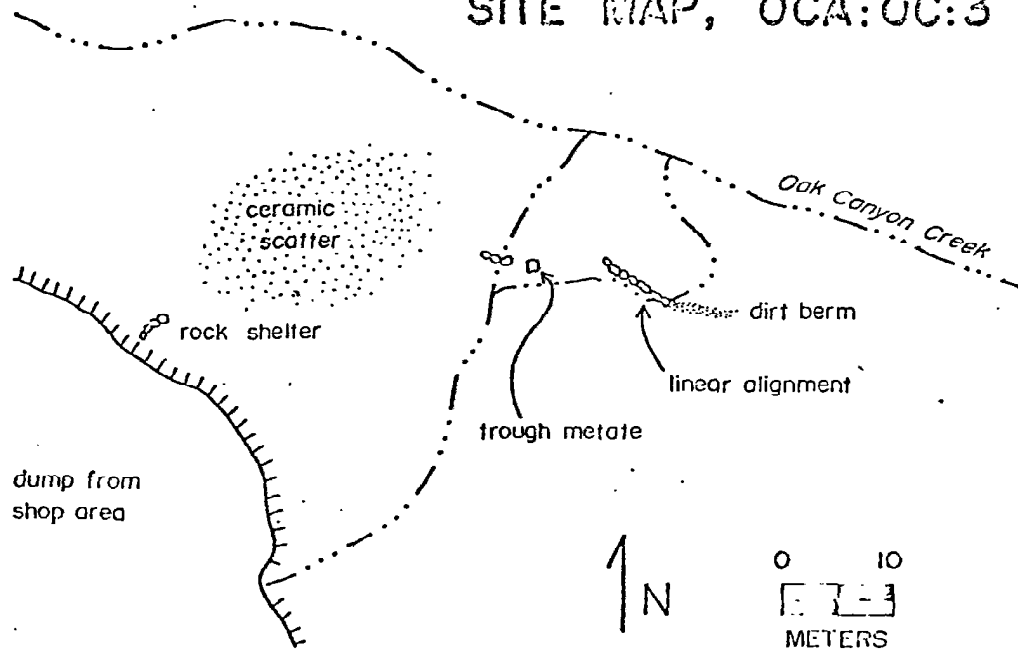
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Mesita, N.M. quadrangle



ANACONDA OAK CANYON
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SITE MAP, OCA:OC:2

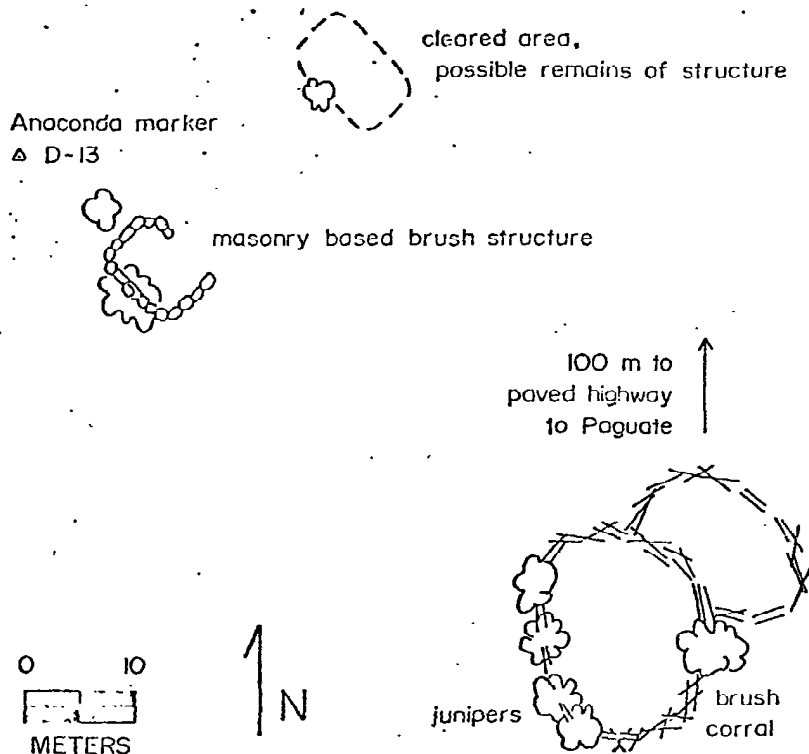


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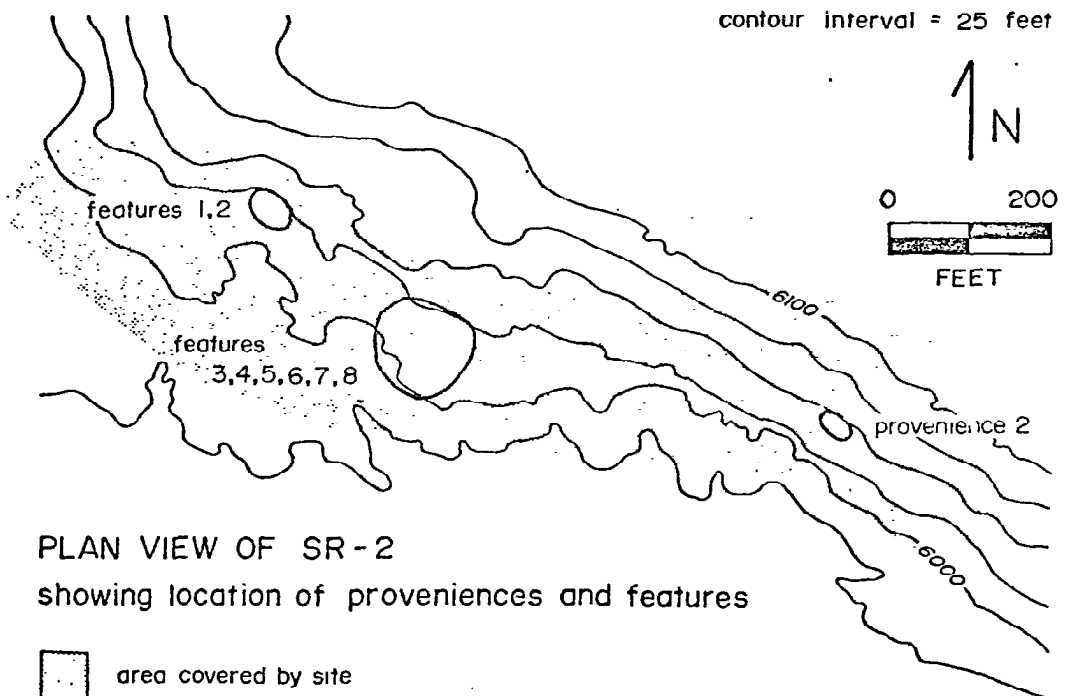


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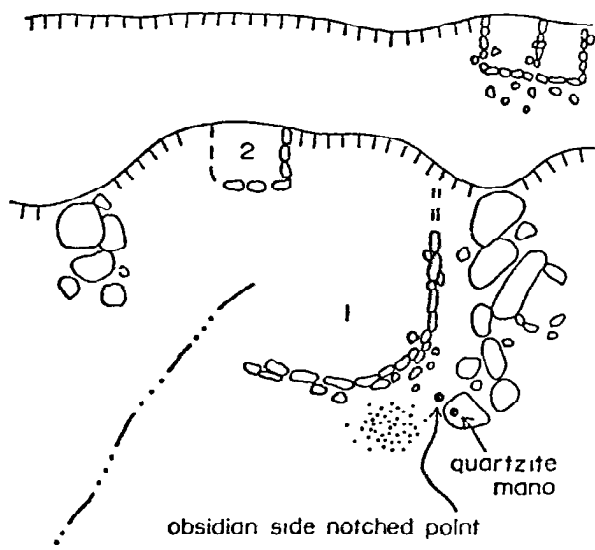
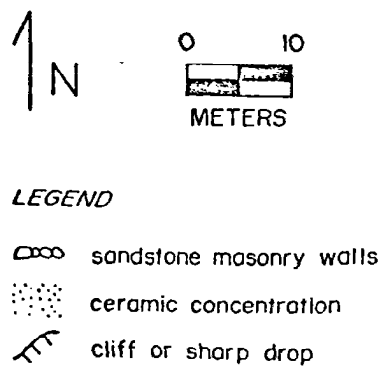
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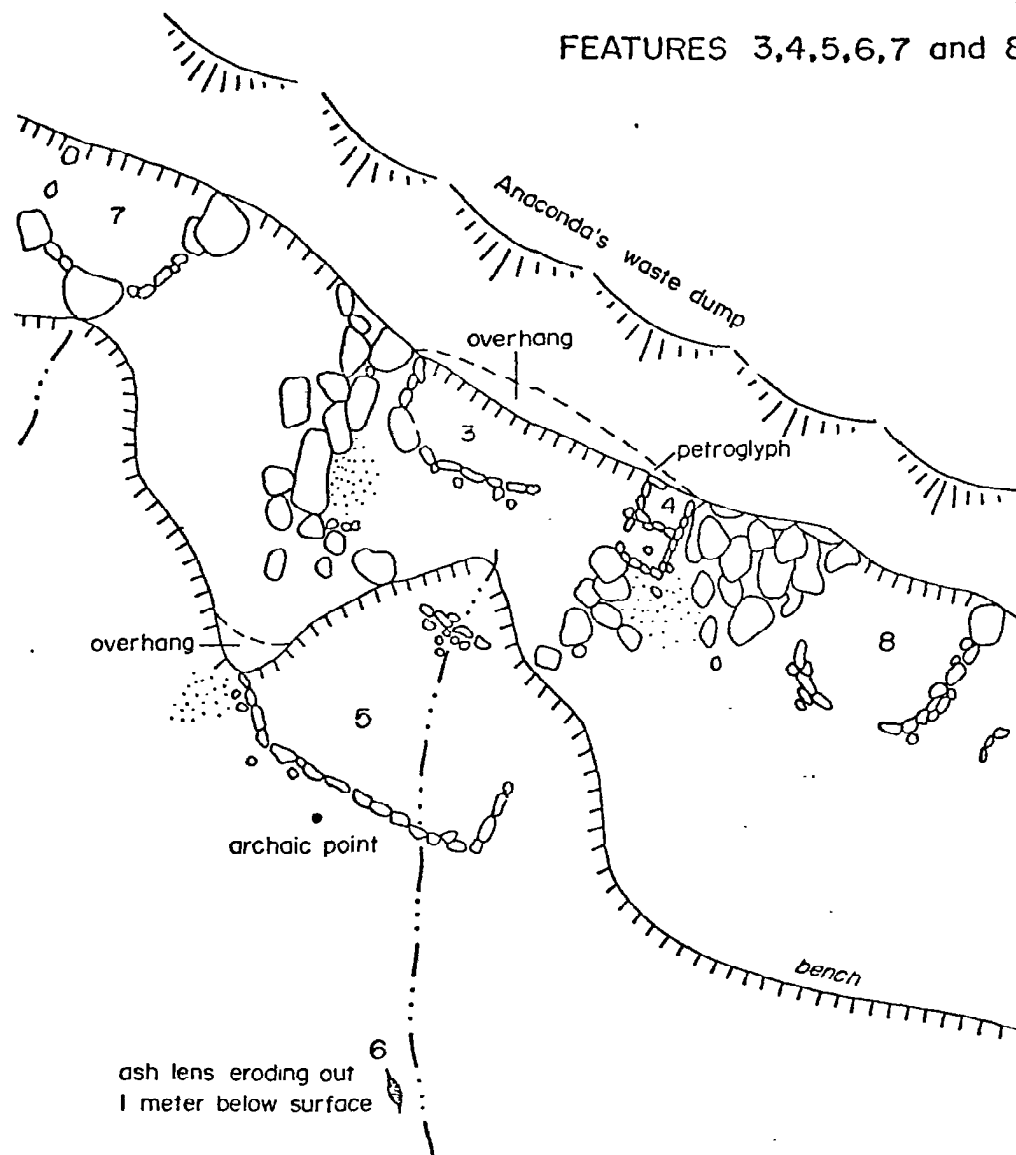
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FEATURES 1 and 2



FEATURES 3,4,5,6,7 and 8



PROVENIENCE 2

